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*Engineering Management, Information, and Systems
Seminar Series*

**Research Seminar
COVID-19 Forecasting: Three Cheers for Simple Models**



**Dr. J. Eric Bickel
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Friday, October 23, 2020

11:00 a.m. – 12:15 p.m.

Zoom link: <https://smu.zoom.us/j/95443369404>

Abstract: Over the last seven months we have witnessed policymakers grappling with how to respond to the spread of COVID-19 across the globe. In the United States, policymakers at local, state, and federal levels have faced difficult decisions regarding the degree to which citizens should interact with each other, how much of the economy should be curtailed, and how to allocate scarce testing and hospital resources. These decisions have been informed and guided by a set of epidemiological models.

In this talk, we analyze the performance of the models used to forecast the spread of COVID-19 and relate differences in performance to differing modeling approaches and structures. For example, some COVID-19 models are “bottom-up” and model the interactions between individuals and communities in detail (i.e., SIR models). While other models are “top-down” and attempt to capture the high-level dynamics of the spread. Some models include uncertainty, while others are deterministic. Certain models are designed to inform policy decisions, while others are meant to provide forecasts.

We compare the performance of these models to a simple (two-equation) model that we have used to forecast the spread of COVID-19 at the national, state, and local level. This model could serve as a forecasting benchmark.

Biography: Eric Bickel is a professor and director of both the Operations Research & Industrial Engineering and Engineering Management programs at The University of Texas at Austin. In addition, he is the Academic Director of the Strategic Decision and Risk Management (SDRM) program offered through the McCombs School of Business. Professor Bickel holds a courtesy appointment in the Department of Petroleum and Geosystems Engineering and directs the Center for Engineering and Decision Analytics (CEDA).

His research interests include the theory and practice of decision analysis and its application to corporate strategy, public policy, and sports. His work has been featured in *The Wall Street Journal*, *The New York Times*, *The Financial Times*, and *Sports Illustrated*. In addition, Professor Bickel and his research are featured in the documentary *Cool It!*. His research into climate engineering was named as the top approach to address climate change by a panel of economists, including three Nobel Laureates. He has also been a guest on the MLB Network show *Clubhouse Confidential*.

Professor Bickel joined Strategic Decisions Group in 1995, where he remains a director and partner. He has practiced decision analysis for 25 years. He consults around the world in a range of industries, including oil and gas, electricity generation/transmission/delivery, energy trading and marketing, commodity and specialty chemicals, life sciences, financial services, and metals and mining.

He is an SDP Fellow and Past-President of the Decision Analysis Society.

Prof. Bickel holds both M.S. and Ph.D. degrees from the Department of Engineering-Economic Systems at Stanford University and a B.S. in mechanical engineering with a minor in economics from New Mexico State University.

Eric claims to be the only decision analyst listed in Hollywood's Internet Movie Database (imdb.me/jericbickel).